



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/484,432 | 01/18/2000 | Muncki Ando | 35.C14218 | 9693 |
| 5514 | 7590 | 03/09/2004 | EXAMINER | |
| FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112 | | | ABDULSELAM, ABBAS I | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2674 | 21 |

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/484,432

Applicant(s)

ANDO ET AL.

Examiner

Abbas I Abdulsalam

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 61-70 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 61-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02.24/04 has been entered.
2. Applicant's arguments with respect to claims 61-70 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 61-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gyouten et al. (USPN 6195077) in view of Fukuda et al. (USPN 5867593) and Yamaguchi et al. (USPN 5654607).

Regarding claims 61 and 66, Gyouten et al. (hereinafter called Gyouten) teaches a liquid crystal panel (101) with segment drive circuit (102), and side drive circuit (103) which is used for selecting sequentially to drive scanning lines. Gyouten teaches displaying images in a simple matrix type which displays an image with a pixel located at each intersections of the electrodes (X1, Y1), (X2, Y2), (X3, Y3).....(Xm, Yn). See column 11, lines 47-58, Fig 1 and Fig 39. Gyouten teaches an output control means for adjusting an amount of correction for the output voltage of the segment side circuit according to the distance between an arrangement position of the segment drive circuit and a position of scanning line selected by the side drive circuit in the liquid crystal panel. See column 1, lines 11-14, column 4, lines 42-47, and Fig 39. Moreover, Gyouten teaches correction clock generator circuit (70) in conjunction with the correction base clock for indicating the position where a correction period is to be provided, and the length of correction period is adjusted by the correction clock generator circuit. In addition, Gyouten teaches counter (72) changes in the outputs (B1, B2, B3) to high level; and further teaches the display data stored in the line latch (123) of the drive circuit (102) that would be given to the liquid crystal drive output circuit (126). See column 1, lines 55-63 and Fig 41. Gyouten also teaches maintaining uniformity of luminance as well as the voltage waveforms with the correction voltage changes. See column 17, lines 30-33 , lines 49-65 and Fig 20. However, Gyouten does not teach a correction circuit such that the correction pulse is adjusted according to the difference between luminance of the signals for pixels that are adjacent to each other in the row direction. Fukuda et al. (hereinafter called Fukuda) on the other hand teaches gradient vector direction unit (16) and luminance level correction processing unit (14) including horizontal

Art Unit: 2674

difference detector (9) calculating the difference value between the luminance levels of an arbitrary pixel and a pixel adjacent in the horizontal direction. See col. 6, lines 34-40 and Fig 1.

Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify Gyouten's liquid crystal display panel to include Fukuda's luminance correction technique including horizontal difference detector. One would have been motivated in view of the suggestion in Fukuda that the luminance level correction process including the horizontal difference level is functionally equivalent to the desired adjustment based on the difference between luminance levels of adjacent pixels. The use of luminance level correction processing unit helps function a display system with image forming technique as taught by Fukuda.

Gyouten in view of Fukuda has been discussed above. However, Gyouten does not teach correcting the modulation in such a way to "suppress an effect or luminance of the display devices supplied with the modulation signal from the pulse width modulator due to waveform modulation of the modulation signal supplied from the pulse modulation by a level change of the modulation signal supplied to the adjacent column wiring". Yamaguchi on the other hand teaches amplitudes of waveforms, which change depending upon luminance of a color image signal, and discloses a modulating-signal driver (318) applying drive signals to each of the wiring lines in the column direction. See col. 11, lines 31-36, col. 21, lines 18-23 and Fig. 13.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gyouten's display system to adapt Yamaguchi's modulating-signal driver (318) along with luminance-waveform relationship. One would have been motivated in view of the suggestion in Yamaguchi that luminance vs. waveform relationship

Art Unit: 2674

along with a modulating-signal driver (318) equivalently provide desired effect of luminance with respect waveform modulation. The use of modulating-signal driver helps function a color display device as taught by Yamaguchi et al.

Regarding claims 63 and 68-70, Gyouten teaches the pulse width modulator (203), and correction clock with modulator (204), which is, supplied with reference correction clock signals. See Fig 29. Gyouten also teaches changing of the length of correction period. See column 16, lines 5-11 and Fig 14.

Regarding claims 62 and 67, Gyouten teaches the liquid crystal panel (101) with common electrodes, segment electrodes and liquid crystal layer interposed between electrodes. Column 2, lines 9-12. In addition, it is well known in the art and would be obvious to utilize a display panel composed of electron emission devices with a phosphor layer. Gyouten also teaches improving display in liquid crystal device apparatus. See column 1, lines 7-10

Regarding claims 64-65 Gyouten teaches amount of correction with respect to uniformly luminance waveforms. See column 17, lines 21-23 and Fig 18.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following arts are cited for further reference.

U.S. Pat. No. 6, 445,367 to Suzuki et al.

5. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abduselam** whose telephone number is **(703) 305-8591**. The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709**.

Any response to this action should be mailed to:


Commissioner of patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to Crystal Park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.


XIAO WU
PRIMARY EXAMINER

Abbas Abduselam

Examiner

Art Unit 2674

March 5, 2004